

REMARKS

Claims 1-9 have been canceled without prejudice. Claims 10-29 have been added to particularly point out and distinctly claim the subject matter of the present invention. Antecedent basis for Claims 10-29 is found throughout the specification and original Claims 1-9.

Attached hereto is a marked up copy of the amendments to the specification indicating the changes made thereto. No new matter has been added.

CONCLUSION


Applicants have made an earnest effort to place the present claims in condition for allowance. WHEREFORE, entry of the amendments provided herewith, and allowance of Claims 11-30, as amended, are respectfully requested. In the event that issues remain prior to allowance of the noted claims, then the Examiner is invited to call:

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to discuss any remaining issues.

Respectfully submitted,

By

  
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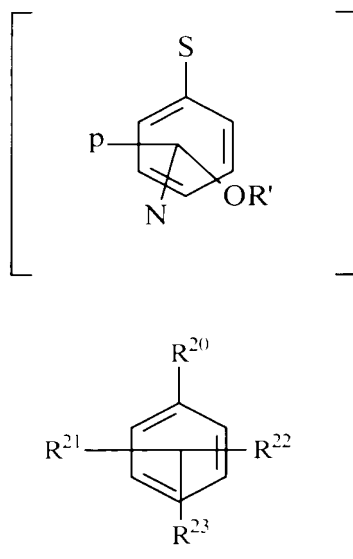
**Amendments to Page 3.**

Yet, another advantage of the liquid bleaching compositions of the present invention is that said bleaching compositions are suitable for various laundry cleaning applications both when used in diluted conditions, e.g. as a detergent additive of a fully formulated laundry detergent composition, and when used in neat condition, e.g. as a liquid pretreater (spotter).

Summary of the invention (underlined in specification)

The present invention relates to a liquid cleaning composition comprising an oxidising agent and a radical scavenger which is selected from the group consisting of:

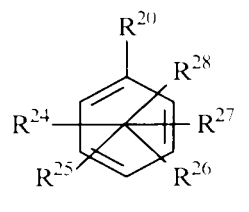
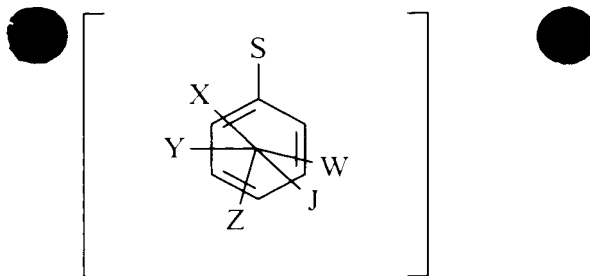
(i)



[Wherein S is either  $-\text{COO}^-\text{M}^+$  or  $-\text{SO}_3^-\text{M}^+$ ; P and N are substituents of the benzene ring being either  $-\text{OR}'$ , H,  $-\text{COO}^-\text{M}^+$ ,  $-\text{Cl}$ ,  $-\text{Br}$ ,  $-\text{SO}_3^-\text{M}^+$ ,  $-\text{NO}_2$ ,  $-\text{OCH}_3$ , or a  $\text{C}_1$  to  $\text{C}_{10}$  primary and secondary alkyl groups; R' is  $\text{C}_2$ - $\text{C}_{20}$  linear or branched alkyl chain; M is either H or a metal.]

wherein  $\text{R}^{20}$  is the moiety  $-\text{COOM}$  or  $-\text{SO}_3\text{M}$ , wherein M is hydrogen or a metal;  $\text{R}^{21}$  and  $\text{R}^{22}$  are each independently hydrogen,  $\text{C}_1$ - $\text{C}_{10}$  linear or branched alkyl,  $-\text{OR}'$  wherein R' is  $\text{C}_1$ - $\text{C}_{20}$  linear or branched alkyl,  $-\text{COOM}$ ,  $-\text{SO}_3\text{M}$ ,  $-\text{Cl}$ ,  $-\text{Br}$ ,  $-\text{NO}_2$ , and mixtures thereof;  $\text{R}^{23}$  is  $-\text{OR}'$  wherein R' is  $\text{C}_1$ - $\text{C}_{20}$  linear or branched alkyl.

(ii)

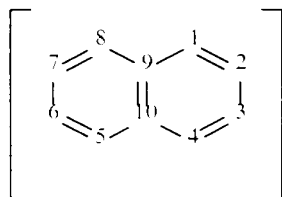


#### Amendments to page 4.

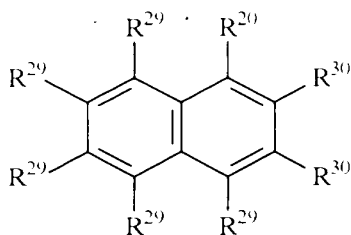
[Wherein S is either  $-\text{COO}^-\text{M}^+$  or  $-\text{SO}_3^-\text{M}^+$ ; X, Y, Z, W are substituents of the benzene ring being either  $-\text{COO}^-\text{M}^+$ ,  $-\text{Cl}$ ,  $-\text{Br}$ ,  $-\text{SO}_3^-\text{M}^+$ ,  $-\text{NO}_2$ ,  $-\text{OR}^+$  (with  $\text{R}^+=$ linear or branched alkyl chain C1-C20), or a  $\text{C}_1$  -  $\text{C}_{10}$  primary and secondary alkyl groups; J is  $-\text{H}$ ,  $-\text{COO}^-\text{M}^+$ ,  $-\text{Cl}$ ,  $-\text{Br}$ ,  $-\text{SO}_3^-\text{M}^+$ ,  $-\text{NO}_2$ ,  $-\text{OR}^+$  (with  $\text{R}^+=$ linear or branched alkyl chain C1-C20), or a  $\text{C}_1$  to  $\text{C}_{10}$  primary and secondary alkyl group and M is either H or a metal.]

wherein  $\text{R}^{20}$  is the moiety  $-\text{COOM}$  or  $-\text{SO}_3\text{M}$ , wherein M is hydrogen or a metal;  $\text{R}^{24}$ ,  $\text{R}^{25}$ ,  $\text{R}^{26}$ , and  $\text{R}^{27}$  are each independently  $\text{C}_1$ - $\text{C}_{10}$  linear or branched alkyl,  $-\text{OR}^+$  wherein  $\text{R}^+$  is  $\text{C}_1$ - $\text{C}_{20}$  linear or branched alkyl,  $-\text{COOM}$ ,  $-\text{SO}_3\text{M}$ ,  $-\text{Cl}$ ,  $-\text{Br}$ ,  $-\text{NO}_2$ , and mixtures thereof;  $\text{R}^{28}$  is hydrogen,  $\text{C}_1$ - $\text{C}_{10}$  linear or branched alkyl,  $-\text{OR}^+$  wherein  $\text{R}^+$  is  $\text{C}_1$ - $\text{C}_{20}$  linear or branched alkyl,  $-\text{COOM}$ ,  $-\text{SO}_3\text{M}$ ,  $-\text{Cl}$ ,  $-\text{Br}$ ,  $-\text{NO}_2$ , and mixtures thereof;

[(iii) Naphtalene derivatives wherein the carbon atoms in position 1 to 8 (see below figure for carbon numbering ) are substituted with S, A, B, C, D, E, F, G groups and wherein: S is either  $-\text{COO}^-\text{M}^+$  or  $-\text{SO}_3^-\text{M}^+$ ; A, B, C, D are  $-\text{COO}^-\text{M}^+$ ,  $-\text{Cl}$ ,  $-\text{Br}$ ,  $-\text{SO}_3^-\text{M}^+$ ,  $-\text{NO}_2$ ,  $-\text{OR}^+$  (with  $\text{R}^+=$ linear or branched alkyl chain C1-C20), or a  $\text{C}_1$  to  $\text{C}_{10}$  primary and secondary alkyl groups; E, F, and G are either  $-\text{H}$ ,  $-\text{COO}^-\text{M}^+$ ,  $-\text{Cl}$ ,  $-\text{Br}$ ,  $-\text{SO}_3^-\text{M}^+$ ,  $-\text{NO}_2$ ,  $-\text{OR}^+$  (with  $\text{R}^+=$ linear or branched alkyl chain C1-C20), or a  $\text{C}_1$  to  $\text{C}_{10}$  primary and secondary alkyl group and M is either H or a metal]

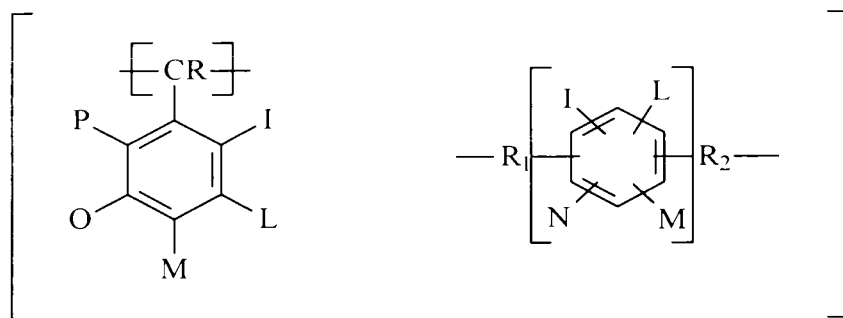


(iii)



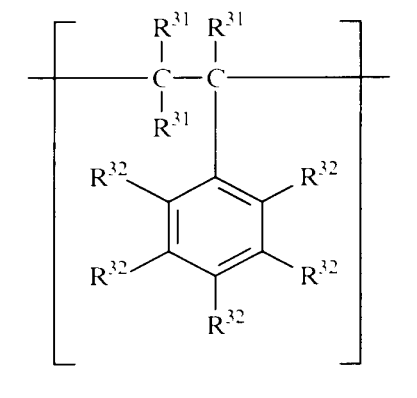
wherein  $R^{29}$  is the moiety  $-\text{COOM}$  or  $-\text{SO}_3\text{M}$ , wherein M is hydrogen or a metal; each  $R^{29}$  is independently  $\text{C}_1\text{-C}_{10}$  linear or branched alkyl,  $-\text{OR}'$  wherein  $\text{R}'$  is  $\text{C}_1\text{-C}_{20}$  linear or branched alkyl,  $-\text{COOM}$ ,  $-\text{SO}_3\text{M}$ ,  $-\text{Cl}$ ,  $-\text{Br}$ ,  $-\text{NO}_2$ , and mixtures thereof; each  $R^{30}$  is independently hydrogen,  $\text{C}_1\text{-C}_{10}$  linear or branched alkyl,  $-\text{OR}'$  wherein  $\text{R}'$  is  $\text{C}_1\text{-C}_{20}$  linear or branched alkyl,  $-\text{COOM}$ ,  $-\text{SO}_3\text{M}$ ,  $-\text{Cl}$ ,  $-\text{Br}$ ,  $-\text{NO}_2$ , and mixtures thereof;

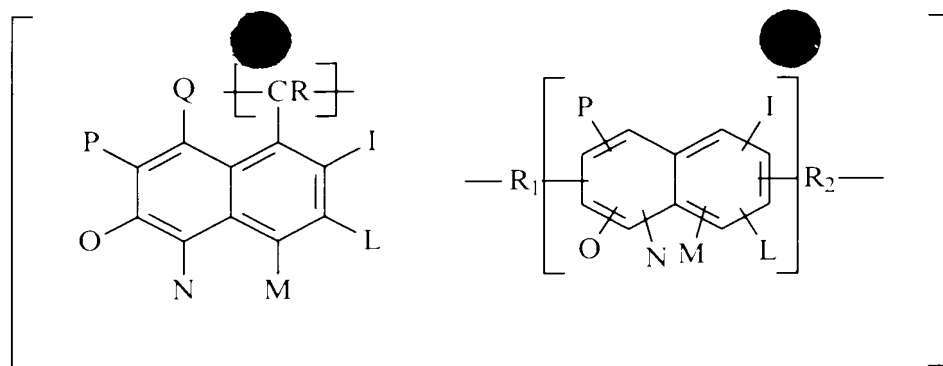
[(iv) homo or copolymers containing either as a part of the repeating unit(s) or as a side chain substituent one or more residues of the type:]



(iv) homopolymers of copolymers comprising units having the formula:

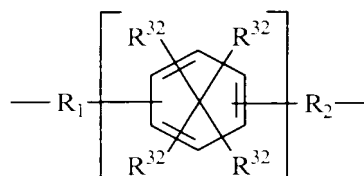
a)



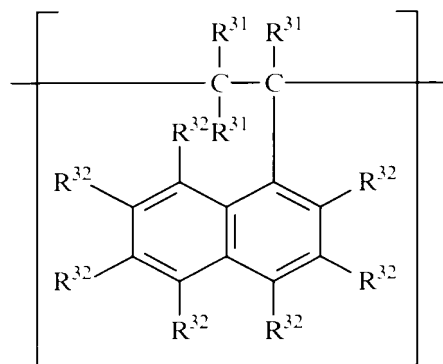


[wherein I, L, M, N, O, P, Q are either  $-\text{COO}^-\text{M}^+$ ,  $-\text{Cl}$ ,  $-\text{Br}$ ,  $-\text{SO}_3^-\text{M}^+$ ,  $-\text{NO}_2$ ,  $-\text{OR}'$  (with  $\text{R}'$ =linear or branched alkyl chain  $\text{C}_1$ - $\text{C}_{20}$ ), or a  $\text{C}_1$  -  $\text{C}_{10}$  primary and secondary alkyl groups; R is either H,  $-\text{COO}^-\text{M}^+$ ,  $-\text{Cl}$ ,  $-\text{Br}$ ,  $-\text{SO}_3^-\text{M}^+$ ,  $-\text{NO}_2$ ,  $-\text{OR}'$  (with  $\text{R}'$ =linear or branched alkyl chain  $\text{C}_1$ - $\text{C}_{20}$ ),  $-\text{OH}$ , or a  $\text{C}_1$  -  $\text{C}_{10}$  primary and secondary alkyl groups;  $\text{R}_1$  and  $\text{R}_2$  are either  $-\text{CH}_2-$ ,  $-\text{CHR}-$ ,  $-\text{CRR}-$ ,  $-\text{CO}-$ ,  $-\text{CO}-\text{O}-$ ,  $-\text{CO}-\text{NH}-$ ,  $-\text{O}-$ ,  $-\text{CH}_2\text{CH}_2\text{O}-$ ,  $-\text{N}^+(\text{R})_2-$ ,  $-(\text{N} \rightarrow \text{O})-$  and M is either H or a metal.]

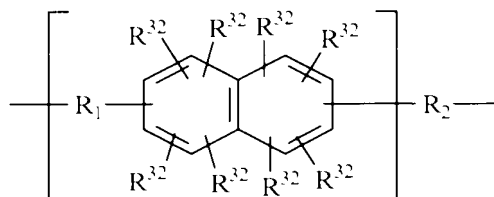
b)



c)



d)



wherein  $\text{R}^{31}$  is the moiety hydrogen,  $\text{C}_1$ - $\text{C}_{10}$  linear or branched alkyl,  $-\text{OR}'$  wherein  $\text{R}'$  is  $\text{C}_1$ - $\text{C}_{20}$  linear or branched alkyl,  $-\text{OH}$ ,  $-\text{COOM}$ ,  $-\text{SO}_3\text{M}$ ,  $-\text{Cl}$ ,  $-\text{Br}$ ,  $-\text{NO}_2$ , and mixtures thereof; wherein M is hydrogen or a metal; each  $\text{R}^{32}$  is independently hydrogen,  $\text{C}_1$ - $\text{C}_{10}$  linear or branched alkyl,  $-\text{OR}'$

wherein  $R'$  is  $C_1$ - $C_{20}$  linear or branched alkyl,  $-\text{COOM}$ ,  $-\text{SO}_3\text{M}$ ,  $-\text{Cl}$ ,  $-\text{Br}$ ,  $-\text{I}$  and mixtures thereof;  
 $R_1$  and  $R_2$  are each independently selected from  $-\text{C}(\text{R}^{31})_2-$ ,  $-\text{CO}-$ ,  $-\text{C}(\text{O})\text{O}-$ ,  $-\text{C}(\text{O})\text{NH}-$ ,  $-\text{O}-$ ,  $-\text{N}^+(\text{R}^{31})_2-$ ;

(v) and mixtures thereof.

In a preferred embodiment the compositions of the present invention further comprise one or more surfactants and/or a brightener.

#### Detailed description of the invention (underlined in specification)

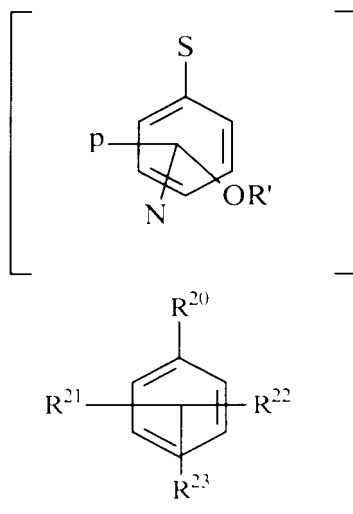
##### Liquid cleaning compositions: (underlined in specification)

The compositions according to the present invention are in liquid form. Preferably, the compositions of the present invention are thickened. Thickening can be achieved by the addition of thickening components for example surfactants, more particularly anionic surfactants. Preferably the compositions are in aqueous form. More preferably, they comprise water in an amount of from 60% to 98% by weight, more preferably of from 80% to 97% and most preferably of from 85% to 97% by weight of the total aqueous liquid bleaching composition.

##### Oxidising agent (underlined in specification)

#### **Amendments to page 7:**

The radical scavengers of the present invention are described in four categories. The first category of radical scavengers (i) has the general formula:

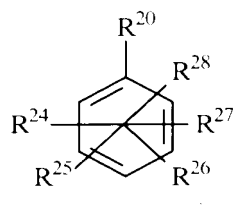
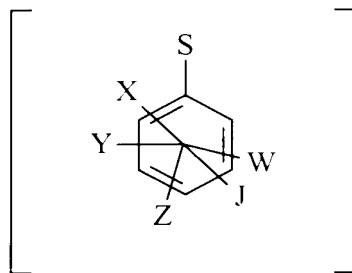


#### **Amendments to Page 8:**

[Wherein S is either  $-\text{COO}^-\text{M}^+$  or  $-\text{SO}_3^-\text{M}^+$ ; P and N are substituents of the benzene ring being either  $-\text{OR}^+$ , H,  $-\text{COO}^-\text{M}^+$ ,  $-\text{Cl}$ ,  $-\text{Br}$ ,  $-\text{SO}_3^-\text{M}^+$ ,  $-\text{NO}_2$ ,  $-\text{OCH}_3$ , or a  $\text{C}_1$  to  $\text{C}_{10}$  primary and secondary alkyl groups;  $\text{R}^+$  is  $\text{C}_2$ - $\text{C}_{20}$  linear or branched alkyl chain; M is either H or a metal.]

wherein  $\text{R}^{20}$  is the moiety  $-\text{COOM}$  or  $-\text{SO}_3\text{M}$ , wherein M is hydrogen or a metal;  $\text{R}^{21}$  and  $\text{R}^{22}$  are each independently hydrogen,  $\text{C}_1$ - $\text{C}_{10}$  linear or branched alkyl,  $-\text{OR}^+$  wherein  $\text{R}^+$  is  $\text{C}_1$ - $\text{C}_{20}$  linear or branched alkyl,  $-\text{COOM}$ ,  $-\text{SO}_3\text{M}$ ,  $-\text{Cl}$ ,  $-\text{Br}$ ,  $-\text{NO}_2$ , and mixtures thereof;  $\text{R}^{23}$  is  $-\text{OR}^+$  wherein  $\text{R}^+$  is  $\text{C}_1$ - $\text{C}_{20}$  linear or branched alkyl.

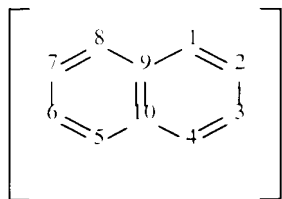
The second category of radical scavengers (ii) has the general formula



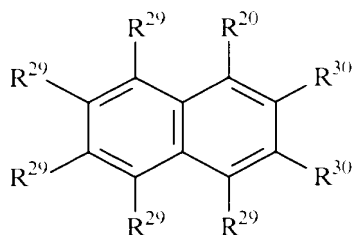
[wherein S is either  $-\text{COO}^-\text{M}^+$  or  $-\text{SO}_3^-\text{M}^+$ ; X, Y, Z, W are substituents of the benzene ring being either  $-\text{COO}^-\text{M}^+$ ,  $-\text{Cl}$ ,  $-\text{Br}$ ,  $-\text{SO}_3^-\text{M}^+$ ,  $-\text{NO}_2$ ,  $-\text{OR}^+$  (with  $\text{R}^+$ =linear or branched alkyl chain  $\text{C}_1$ - $\text{C}_{20}$ ), or a  $\text{C}_1$  -  $\text{C}_{10}$  primary and secondary alkyl groups; J is  $-\text{H}$ ,  $-\text{COO}^-\text{M}^+$ ,  $-\text{Cl}$ ,  $-\text{Br}$ ,  $-\text{SO}_3^-\text{M}^+$ ,  $-\text{NO}_2$ ,  $-\text{OR}^+$  (with  $\text{R}^+$ =linear or branched alkyl chain  $\text{C}_1$ - $\text{C}_{20}$ ), or a  $\text{C}_1$  to  $\text{C}_{10}$  primary and secondary alkyl group and M is either H or a metal.]

wherein  $\text{R}^{20}$  is the moiety  $-\text{COOM}$  or  $-\text{SO}_3\text{M}$ , wherein M is hydrogen or a metal;  $\text{R}^{24}$ ,  $\text{R}^{25}$ ,  $\text{R}^{26}$ , and  $\text{R}^{27}$  are each independently  $\text{C}_1$ - $\text{C}_{10}$  linear or branched alkyl,  $-\text{OR}^+$  wherein  $\text{R}^+$  is  $\text{C}_1$ - $\text{C}_{20}$  linear or branched alkyl,  $-\text{COOM}$ ,  $-\text{SO}_3\text{M}$ ,  $-\text{Cl}$ ,  $-\text{Br}$ ,  $-\text{NO}_2$ , and mixtures thereof;  $\text{R}^{28}$  is hydrogen,  $\text{C}_1$ - $\text{C}_{10}$  linear or branched alkyl,  $-\text{OR}^+$  wherein  $\text{R}^+$  is  $\text{C}_1$ - $\text{C}_{20}$  linear or branched alkyl,  $-\text{COOM}$ ,  $-\text{SO}_3\text{M}$ ,  $-\text{Cl}$ ,  $-\text{Br}$ ,  $-\text{NO}_2$ , and mixtures thereof;

[The third category of radical scavengers (iii) are naphthalene derivatives wherein the carbon atoms in position 1 to 8 (see below figure for carbon numbering ) are substituted with S, A, B, C, D, E, F, G groups and wherein: S is either  $-\text{COO}^-\text{M}^+$  or  $-\text{SO}_3^-\text{M}^+$ ; A, B, C, D are  $-\text{COO}^-\text{M}^+$ ,  $-\text{Cl}$ ,  $-\text{Br}$ ,  $-\text{SO}_3^-\text{M}^+$ ,  $-\text{NO}_2$ ,  $-\text{OR}^+$  (with  $\text{R}^+$ =linear or branched alkyl chain  $\text{C}_1$ - $\text{C}_{20}$ ), or a  $\text{C}_1$  to  $\text{C}_{10}$  primary and secondary alkyl groups; E, F, and G are either  $-\text{H}$ ,  $-\text{COO}^-\text{M}^+$ ,  $-\text{Cl}$ ,  $-\text{Br}$ ,  $-\text{SO}_3^-\text{M}^+$ ,  $-\text{NO}_2$ ,  $-\text{OR}^+$  (with  $\text{R}^+$ =linear or branched alkyl chain  $\text{C}_1$ - $\text{C}_{20}$ ), or a  $\text{C}_1$  to  $\text{C}_{10}$  primary and secondary alkyl group and M is either H or a metal]



The third category of radical scavengers (iii) has the general formula:



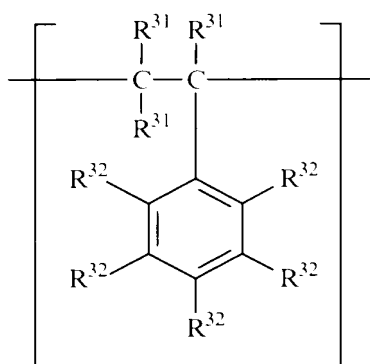
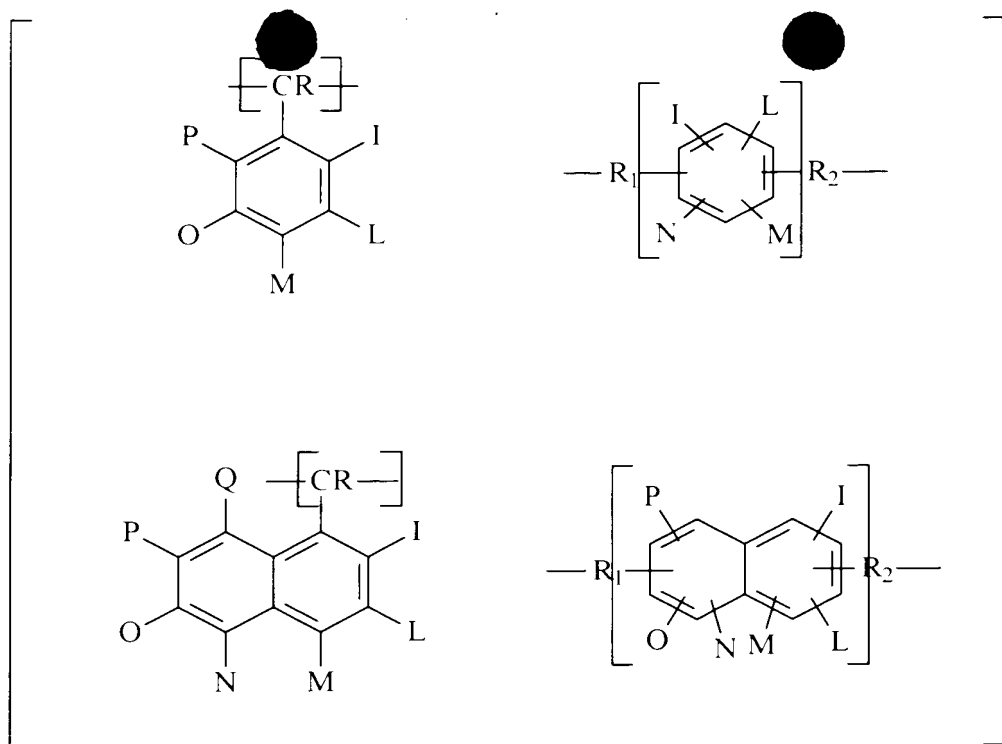
wherein  $R^{29}$  is the moiety  $-COOM$  or  $-SO_3M$ , wherein  $M$  is hydrogen or a metal; each  $R^{29}$  is independently  $C_1-C_{10}$  linear or branched alkyl,  $-OR'$  wherein  $R'$  is  $C_1-C_{20}$  linear or branched alkyl,  $-COOM$ ,  $-SO_3M$ ,  $-Cl$ ,  $-Br$ ,  $-NO_2$ , and mixtures thereof; each  $R^{30}$  is independently hydrogen,  $C_1-C_{10}$  linear or branched alkyl,  $-OR'$  wherein  $R'$  is  $C_1-C_{20}$  linear or branched alkyl,  $-COOM$ ,  $-SO_3M$ ,  $-Cl$ ,  $-Br$ ,  $-NO_2$ , and mixtures thereof;

#### **Amendments to Page 9:**

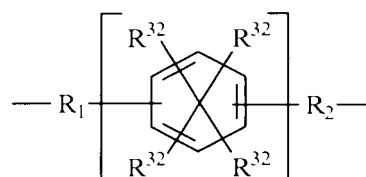
[The forth category of radical scavengers (iv) are homo or copolymers containing either as a part of the repeating unit(s) or as a side chain substituent one or more residues of the type:]

The fourth category of radical scavengers (iv) are homopolymers of copolymers comprising units having the formula:

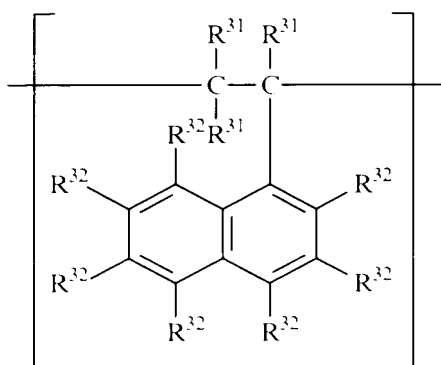




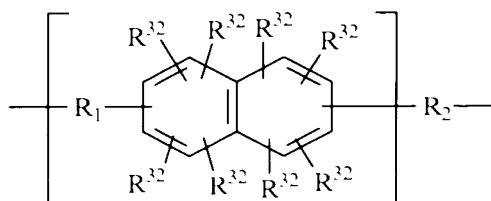
or



or



or



[wherein I, L, M, N, O, P, Q are either  $-\text{COO}^+\text{M}^-$ ,  $-\text{Cl}$ ,  $-\text{Br}$ ,  $-\text{SO}_3^+\text{M}^-$ ,  $-\text{NO}_2$ ,  $-\text{OR}^+$  (with  $\text{R}^+=$ linear or branched alkyl chain  $\text{C}_1\text{-C}_{20}$ ), or a  $\text{C}_1 - \text{C}_{10}$  primary and secondary alkyl groups; R is either H,

COO<sup>-</sup>M<sup>+</sup>, -Cl, -Br, -SO<sub>3</sub><sup>-</sup>M<sup>+</sup>, -OR<sup>+</sup> (with R<sup>+</sup>=linear or branched alkyl in C<sub>1</sub>-C<sub>20</sub>), -OH, or a C<sub>1</sub> - C<sub>10</sub> primary and secondary alkyl groups; R<sub>1</sub> and R<sub>2</sub> are either -CH<sub>2</sub>-, -CHR-, -CRR-, -CO-, -CO-O-, -CO-NH-, -O-, -CH<sub>2</sub>CH<sub>2</sub>O-, -N<sup>+</sup>(R)<sub>2</sub>-, -(N->O)- and M is either H or a metal.]

wherein R<sup>31</sup> is the moiety hydrogen, C<sub>1</sub>-C<sub>10</sub> linear or branched alkyl, -OR<sup>+</sup> wherein R<sup>+</sup> is C<sub>1</sub>-C<sub>20</sub> linear or branched alkyl, -OH, -COOM, -SO<sub>3</sub>M, -Cl, -Br, -NO<sub>2</sub>, and mixtures thereof; wherein M is hydrogen or a metal; each R<sup>32</sup> is independently hydrogen, C<sub>1</sub>-C<sub>10</sub> linear or branched alkyl, -OR<sup>+</sup> wherein R<sup>+</sup> is C<sub>1</sub>-C<sub>20</sub> linear or branched alkyl, -COOM, -SO<sub>3</sub>M, -Cl, -Br, -NO<sub>2</sub>, and mixtures thereof; R<sub>1</sub> and R<sub>2</sub> are each independently selected from -C(R<sup>31</sup>)<sub>2</sub>-, -CO-, -C(O)O-, -C(O)NH-, -O-, -N<sup>+</sup>(R<sup>31</sup>)<sub>2</sub>-.

Preferred radical scavengers are selected from the group consisting of 2,3,4,5 tetramethoxy benzoic acid; 2,3,4,5,6- pentamethoxy benzoic acid; polystyrene; polystyrene sulfonate, styrene: maleic acid copolymer; styrene: acrylic acid copolymer; styrene: ethylene glycol graft polymer; poly(ethyleneglycol) di-toluene sulfonate; poly hydroxy benzoic acid; polyhydroxy styrene; poly methyl styrene; polystyrene divinyl benzene; poly vinyl phenol; and mixtures thereof.

The compositions of the present invention comprise from 0.001% to 10% by weight of the total composition of a radical scavenger, or a mixture thereof.